

**SYSTEM AND METHOD FOR EDITING DIGITAL IMAGES
USING INDUCTIVE IMAGE GENERATION WITH CACHED STATE-SPECIFIC
IMAGE TILES**

ABSTRACT OF THE DISCLOSURE

A system and method using inductive image generation with cached, state-specific image tiles for editing digital images. A computer system contains an archival digital image to be edited and viewed, a transformation state list, describing editing operations to be applied to the archival image in order to produce the current edited image rendition, and a viewing data set, describing the resolution, offset and extent of the current view of the current edited image rendition. The current view is constructed from a set of image tiles kept in a tile cache. In response to an instruction to generate the current view, the system identifies the requisite tiles, and then generates each tile by an inductive image generation process. The latter process comprises (a) ascertaining if the tile is in the tile cache, and, if not (b) ascertaining if the image is unedited and if so obtaining the requisite tile from the image file, and, if not (c) generating the tile by identifying and assembling the requisite supplier tiles in the previous state of the image-editing process and by then applying the current state's editing transformation function to the supplier tiles. The inductive image-generation process is recursive in that in case it is necessary to assemble supplier tiles in the course of the inductive image-generation process then they too are assembled by the process of inductive image generation.

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